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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/303,673 05/03/99 LIN

J

EXAMINER

QM12/0927

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FARAH, A

ART UNIT

PAPER NUMBER

3739

DATE MAILED:

09/27/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/303,673

Applicant(s)  
J. T. Lin

Examiner  
Ahmed Farah

Group Art Unit  
3739



☐ Responsive to communication(s) filed on \_\_\_\_\_

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-19 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-4 and 6-19 is/are rejected.

☒ Claim(s) 5 is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-3, 7-9, and 11-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 5,520,679. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are directed to a method of using a non-contact scanning laser for performing refractive surgery by reshaping a portion of corneal tissue.

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*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 7-9, 11-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin U.S. Pat. No. 5,520,679.

Lin discloses an ophthalmic surgery method using non-contact scanning laser for performing refractive surgery by reshaping a portion of corneal surface, the method comprising the steps of: selecting a pulsed laser beam having an energy level less than 10 mJ; selecting a scanning mechanism for scanning said selected laser beam; and coupling said laser beam to a scanning device for scanning said laser beam over a predetermined corneal surface. Lin teaches that the basic laser systems may include flash-lamp and diode pumped UV solid state lasers (193-215 nm), compact excimer laser (193 nm), free-running Er:glass (1.54 microns), Ho:YAG (2.1 microns), Q-switched Er:YAG (2.94 microns), and ultrashort IR (750-1100 nm) and mid-IR (2.5-3.2 microns) lasers. Further, Lin also discloses that these lasers are selected with energy range of (0.01-10) mJ, repetition rate of 1-10,000 Hz, pulse duration of 0.01 ns to a few hundred picoseconds, and beam spot sizes of (0.05-2) mm for use with refractive laser surgery.

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*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin U.S.

✓ Pat. No. 5,520,679 in view of Knopp et al., U.S. Pat. No. 6,099,522. Lin has been described above. However, although Lin discloses the use of gas lasers (e.g., excimers) for his method, he does not specifically employ frequency-doubled CO<sub>2</sub> laser for performing the surgery.

Knopp et al., discloses a method, apparatus and system for template-controlled, precision laser interventions that greatly improves the accuracy, speed, range, reliability, versatility, safety, and efficiency of interventions such as laser microsurgery, particularly ophthalmic surgery, and industrial micromachining. In one embodiment, Knopp et al., discloses that a variety of lasers such as excimer lasers, holmium lasers, carbon dioxide lasers or some other lasers may be used for ophthalmic applications. Therefore, it would have been obvious to one having the ordinary skill in the art at the time of the applicant's invention to modify Lin's invention in view of Knopp et al., and employ frequency doubled CO<sub>2</sub> laser which operates in the mid-infrared region of the spectra, in order to perform refractive surgery by reshaping a portion of the cornea and avoid lesions below the front surface of the cornea in light of all the benefits taught by Knopp et al.

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7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin U.S. Pat. No. 5,520,679 in view of Machat U. S. Pat. No. 5,630,810. Lin has been described above. However, Lin does not teach the use of a gas blower to control the hydration of the corneal surface during the ablation procedure.

Machat discloses an ophthalmic surgery method which is used to change the optical characteristic of an eye by subjecting the eye's cornea to ultraviolet irradiation, thereby removing corneal tissue by way of photoablative decomposition. Further, Machat describes the problems associated with the hydration of corneal tissue during the tissue ablation process. Thus, Col. 5, lines 51-55 of Machat teach a method of controlling the hydration level of the corneal tissue by blowing nitrogen across the cornea. Therefore, it would have been obvious to one having the ordinary skill in the art at the time of the applicant's invention to modify Lin's method in view of Machat and blow gas across the corneal surface during the tissue ablation procedure in order to remove the fluid accumulation on the corneal surface, wherein said fluids interfere with the ablating laser light directed to the tissue.

8. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al., U.S. Pat. No. 6,010,497 in view of Telfair et al., U.S. Pat. No. 6,090,102.

Tang discloses a laser beam delivery system and method for ablating tissue, e.g., for reshaping a cornea of an eye. Tang further teaches that the laser beam is incrementally scanned to subsequent laser beam ablation points or spots in the ablation zone in accordance with predetermined pattern. However, Tang does not teach the specifications of the lasers that may be

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used for reshaping the cornea. Telfair et al., discloses a solid state laser source which produces short-pulse, mid-infrared radiation for surgical applications, e.g., corneal ablation procedures for correcting refractive errors. Telfair further teaches that such a laser produces energy levels of up to 20 mJ, pulse durations of less than 50 ns, and pulse repetition rate that may exceed 30 Hz. Therefore, it would have been obvious to one having the ordinary skill in the art at the time of the applicant's invention to modify Tang's invention in view of Telfair and employ a laser source which operates at the mid-infrared region of the spectra, and produces energy pulses of less than 15 mJ in order to perform refractive surgery by reshaping a portion of the cornea, without overheating the corneal tissue.

***Allowable Subject Matter***

9. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the following references:

- |                    |                         |
|--------------------|-------------------------|
| 1. Sand            | U.S. Pat. No. 5,484,432 |
| 2. Telfair et al., | U.S. Pat. No. 5,782,822 |
| 3. Rajan et al.,   | U.S. Pat. No. 5,891,131 |

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Farah whose telephone number is (703)305-5787.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Linda Dvorak, can be reached on (703) 308-0994. The fax number for this Group is (703)305-3590.



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